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Amendment and Response

Applicant: Melissa D. Boyd et al.
Serial No.: 10/723,891
Filed: November 26, 2003
Docket No.: 109701792-1

Title: PLATFORM INCLUDING FLUID MANIFOLD FOR MULTIPLE FLUID EJECTION DEVICES

IN THE CLAIMS

Please amend claims 38 and 43 as follows:

1-19. (Cancelled)

20. (Previously Presented) A fluid ejection assembly, comprising:

a platform having a fluid inlet, a fluid outlet, a first plurality of fluid feed slots, a second plurality of fluid feed slots, and a fluid manifold defined therein; and

a plurality of fluid ejection devices each mounted on the platform, each of the fluid ejection devices including an array of drop ejecting elements and a fluid refill slot communicating with the array of drop ejecting elements,

wherein the fluid refill slot of each of the fluid ejection devices communicates with one of at least one of the first plurality of fluid feed slots and at least one of the second plurality of fluid feed slots of the platform, and

wherein the fluid manifold fluidically couples each of the first plurality of fluid feed slots and the second plurality of fluid feed slots with the fluid inlet and the fluid outlet of the platform, and includes a first channel communicating with the fluid inlet, a first plurality of sub-channels each communicating with the first channel and one of the first plurality of fluid feed slots, a second channel communicating with the fluid outlet, a second plurality of sub-channels each communicating with the second channel and one of the second plurality of fluid feed slots, and a third plurality of sub-channels each communicating with one of the first plurality of fluid feed slots and one of the second plurality of fluid feed slots.

21. (Previously Presented) The assembly of claim 20, wherein the fluid manifold is adapted to circulate fluid between the fluid inlet, the first plurality of fluid feed slots, the second plurality of fluid feed slots, and the fluid outlet.

22. (Previously Presented) The assembly of claim 20, wherein the fluid manifold is adapted to circulate fluid from the fluid inlet to one of the first plurality of fluid feed slots,

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from the one of the first plurality of fluid feed slots to one of the second plurality of fluid feed slots, and from the one of the second plurality of fluid feed slots to the fluid outlet.

23-25. (Cancelled)

26. (Previously Presented) The assembly of claim 20, wherein the platform is a multilayered platform and includes a first layer having the fluid inlet and the fluid outlet defined therein, a second layer having the first plurality of fluid feed slots and the second plurality of fluid feed slots defined therein, and at least one third layer having the fluid manifold defined therein, wherein the at least one third layer is interposed between the first layer and the second layer, and wherein the fluid ejection devices are each mounted on the second layer.

27. (Previously Presented) The assembly of claim 20, wherein each of the drop ejecting elements include a fluid chamber communicated with the fluid refill slot, a firing resistor positioned within the fluid chamber, and a nozzle opening associated with the firing resistor and communicated with the fluid chamber.

28. (Previously Presented) The assembly of claim 20, further comprising:
an electrical interconnection extending through the platform, wherein each of the fluid ejection devices are electrically coupled to the electrical interconnection.

29. (Previously Presented) A fluid ejection system, comprising:
a reservoir adapted to hold a supply of fluid therein;
a platform having a fluid inlet, a fluid outlet, a first plurality of fluid feed slots, a second plurality of fluid feed slots, and a fluid manifold defined therein, wherein the fluid inlet and the fluid outlet communicate with the reservoir and the fluid manifold communicates the first plurality of fluid feed slots and the second plurality of fluid feed slots with the fluid inlet and the fluid outlet; and
a plurality of fluid ejection devices each mounted on the platform, each of the fluid ejection devices including an array of drop ejecting elements and a fluid refill slot

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communicating with the array of drop ejecting elements, wherein the fluid refill slot of each of the fluid ejection devices communicates with one of at least one of the first plurality of fluid feed slots and at least one of the second plurality of fluid feed slots of the platform,

wherein the fluid manifold includes a first channel communicating with the fluid inlet, a first plurality of sub-channels each communicating with the first channel and one of the first plurality of fluid feed slots, a second channel communicating with the fluid outlet, a second plurality of sub-channels each communicating with the second channel and one of the second plurality of fluid feed slots, and a third plurality of sub-channels each communicating with one of the first plurality of fluid feed slots and one of the second plurality of fluid feed slots.

30. (Previously Presented) The system of claim 29, wherein the fluid manifold is adapted to circulate a quantity of the fluid from the reservoir to each of the fluid ejection devices and from each of the fluid ejection devices back to the reservoir.

31. (Previously Presented) The system of claim 29, wherein the fluid manifold is adapted to circulate a quantity of the fluid from the reservoir to one of the fluid ejection devices, from the one of the fluid ejection devices to another of the fluid ejection devices, and from the other of the fluid ejection devices to the reservoir.

32-34. (Cancelled)

35. (Previously Presented) The system of claim 29, wherein the platform is a multilayered platform and includes a first layer having the fluid inlet and the fluid outlet defined therein, a second layer having the first plurality of fluid feed slots and the second plurality of fluid feed slots defined therein, and at least one third layer having the fluid manifold defined therein, wherein the at least one third layer is interposed between the first layer and the second layer, and wherein the fluid ejection devices are each mounted on the second layer.

36. (Previously Presented) The system of claim 29, wherein each of the drop ejecting elements include a fluid chamber communicated with the fluid refill slot, a firing resistor

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positioned within the fluid chamber, and a nozzle opening associated with the firing resistor and communicated with the fluid chamber.

37. (Previously Presented) The system of claim 29, further comprising:
an electrical interconnection extending through the platform, wherein each of the fluid ejection devices are electrically coupled to the electrical interconnection.

38. (Currently Amended) A method of forming a fluid ejection assembly, the method comprising:

forming a platform with a fluid inlet, a fluid outlet, a first plurality of fluid feed slots, a second plurality of fluid feed slots, and a fluid manifold therin, including fluidically coupling each of the first plurality of fluid feed slots and the second plurality of fluid feed slots with the fluid inlet and the fluid outlet via the fluid manifold; and

mounting a plurality of fluid ejection devices on the platform, including fluidically coupling each of the fluid ejection devices with one of at least one of the first plurality of fluid feed slots and at least one of the second plurality of fluid feed slots,

wherein fluidically coupling each of the first plurality of fluid feed slots and the second plurality of fluid feed slots with the fluid inlet and the fluid outlet includes defining a first fluid flow path from the fluid inlet, a first plurality of fluid flow paths each communicating with the first fluid flow path and one of the first plurality of fluid feed slots, a second fluid flow path to the fluid outlet, a second plurality of fluid flow paths each communicating with one of the second plurality of fluid feed slots and the second fluid flow path, and a third plurality of fluid flow paths each communicating with the second fluid flow path and one of the second plurality of fluid feed slots, and a third plurality of fluid flow paths each communicating with one of the first plurality of fluid feed slots and one of the second plurality of fluid feed slots.

39-40. (Cancelled)

41. (Previously Presented) The method of claim 38, wherein forming the platform includes interposing at least one inner layer having the fluid manifold formed therein between

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a first outer layer having the fluid inlet and the fluid outlet formed therein and a second outer layer having the first plurality of fluid feed slots and the second plurality of fluid feed slots formed therein, and wherein mounting the plurality of fluid ejection devices includes mounting the fluid ejection devices on the second outer layer.

42. (Previously Presented) The method of claim 38, wherein fluidically coupling each of the fluid ejection devices with at least one of the first plurality of fluid feed slots and the second plurality of fluid feed slots includes fluidically coupling a fluid refill slot of each of the fluid ejection devices with at least one of the first plurality of fluid feed slots and the second plurality of fluid feed slots.

43. (Currently Amended) A method of circulating fluid between a reservoir and a plurality of fluid ejection devices each mounted on a platform, the method comprising:
communicating a fluid inlet and a fluid outlet of the platform with the reservoir;
supplying a fluid manifold of the platform with fluid from the reservoir via the fluid inlet;

distributing the fluid to a first plurality of fluid feed slots and a second plurality of fluid feed slots of the platform via the fluid manifold;

supplying a fluid refill slot of each of the fluid ejection devices with a portion of the fluid via one of at least one of the first plurality of fluid feed slots and at least one of the second plurality of fluid feed slots; and

returning a portion of the fluid to the reservoir via the fluid manifold and the fluid outlet,

wherein distributing, supplying, and returning the fluid includes distributing the fluid from the fluid inlet to each of the first plurality of fluid feed slots via a ~~first fluid flow path~~ from ~~a first channel communicating with~~ the fluid inlet and ~~a first plurality of fluid flow paths via a first plurality of sub-channels each communicating with the first fluid flow path~~ the ~~first channel~~ and one of the first plurality of fluid feed slots, from each of the second plurality of fluid feed slots to the fluid outlet via a ~~second fluid flow path to a second channel~~ ~~communicating with~~ the fluid outlet and ~~a second plurality of fluid flow paths via a second~~ ~~plurality of sub-channels each communicating with the second channel and one of the second~~

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plurality of fluid feed slots and the second fluid flow path, and between each of the first plurality of fluid feed slots and the second plurality of fluid feed slots via a third plurality of fluid flow paths a third plurality of sub-channels each communicating with one of the first plurality of fluid feed slots and one of the second plurality of fluid feed slots.

44. (Cancelled)

45. (Previously Presented) The method of claim 43, wherein supplying the fluid refill slot of each of the fluid ejection devices includes feeding a fluid chamber of each of the fluid ejection devices with a portion of the fluid.